AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraph beginning at page 13, line 16 with the following amended paragraph:

Typically, when an optical detection system is used in an AFM such as AFM 10 (FIG. 1), the optical detection system output measures the absolute angle of the cantilever in space about both the X and Y-axes θ_x and θ_y, respectively. Due to imperfections in manufacturing piezoelectric tube actuators, when a signal V_z is applied to it both vertical and an unideal small lateral (bending) motions may be observed. This small lateral motion is detected by the optical detection system. Therefore, the angle θ_y that is detected by the optical detection system is ~~compromised~~ comprised of cantilever deflection relative to its base plus actuator bending. Consequently, z_p cannot be ~~accurately~~ accurately inferred from the detector output. Therefore, because the type of measurement used for force detection during sample imaging is a poor choice for calibration purposes, the calibration unit 60 of FIG. 3 instead measures the deflection of the cantilever at a point or multiple points relative to the cantilever's fixed end proximate the actuator 12.